IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 12 has been amended as follows:

Listing of Claims:

Claim 1 (original): A method for producing a zero-valent transition metal complex (C) by reacting a divalent transition metal complex (A) selected from the group consisting of a divalent ruthenium complex (A^1) and divalent osmium complex (A^2) with an olefin (B), wherein the reaction is conducted under reducing conditions and the resulting crude product is treated by hot extraction with a saturated hydrocarbon as an extracting solvent.

Claim 2 (original): The method according to Claim 1 for producing a zero-valent transition metal complex, wherein the divalent transition metal complex (A) is selected from the group consisting of a divalent ruthenium-arene complex and divalent osmium-arene complex.

Claim 3 (original): The method according to Claim 2 for producing a zero-valent transition metal complex, wherein the arene is a benzene ring substituted with an alkyl of 1 to 20 carbon atoms.

Claim 4 (original): The method according to Claim 2 for producing a zero-valent transition metal complex, wherein the divalent ruthenium complex (A^1) is a cymene ruthenium dichloride complex.

Claim 5 (original): The method according to Claim 1 for producing a zero-valent transition metal complex, wherein the olefin (B) is a cyclopolyene.

Claim 6 (original): The method according to Claim 5 for producing a zero-valent transition metal complex, wherein the cyclopolyene is a cyclodiene.

Claim 7 (original): The method according to Claim 1 for producing a zero-valent transition metal complex, wherein the reaction is conducted in an alcohol solvent in the presence of an elementary metal or metal compound as a reducing agent.

Claim 8 (original): The method according to Claim 7 for producing a zero-valent transition metal complex, wherein the metal compound is a sodium compound.

Claim 9 (original): The method according to Claim 1 for producing a zero-valent transition metal complex, wherein the hot extraction is conducted at 30°C or higher.

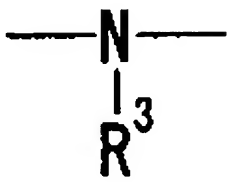
Claim 10 (original): The method according to Claim 1 for producing a zero-valent transition metal complex, wherein the saturated hydrocarbon is selected from the group consisting of hexane, heptane and cyclohexane.

Claim 11 (original): The method according to Claim 4 for producing a zero-valent transition metal complex, wherein the zero-valent transition metal complex is ruthenium (cymene) (1,5-cyclooctadiene).

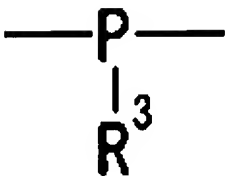
Claim 12 (currently amended): A method for producing an organometallic compound, wherein the zero-valent transition metal complex (C) produced by ~~one of Claims 1 to 11~~ Claim 1 is reacted with a compound (D) represented by the general formula (1) and neutral ligand (E) in one step:

$$R^1Y^1CR^2X^1_2 \qquad (1)$$

(wherein, R^1 is hydrogen atom, or an alkyl group of 1 to 20 carbon atoms, alkenyl group of 2 to 20 carbon atoms or aryl group of 6 to 20 carbon atoms, each group of which may be substituted by an alkyl group of 1 to 5 carbon atoms, carboxyl group, alkoxy group of 1 to 5 carbon atoms, alkenyloxy group of 1 to 5 carbon atoms, aryloxy group of 6 to 10 carbon atoms, alkylsilyl group of 1 to 6 carbon atoms, arylsilyl group of 6 to 10 carbon atoms, acyl group of 1 to 7 carbon atoms, hydroxyl group, amino group of 0 to 10 carbon atoms, halogen atom, or nitro, acetyl or acetoxy group; Y^1 is a chalcogen atom, nitrogen-containing group represented by the general formula (2) or phosphorus-containing group represented by the general formula (3); and



(2)



(3)

X^1 is a halogen atom, where R^2 and R^3 in the general formulae are each the same as R^1, and two of R^1 to R^3 may be bound to each other).

Claim 13 (original): The method according to Claim 12 for producing an organometallic compound, wherein R^2 is hydrogen atom.

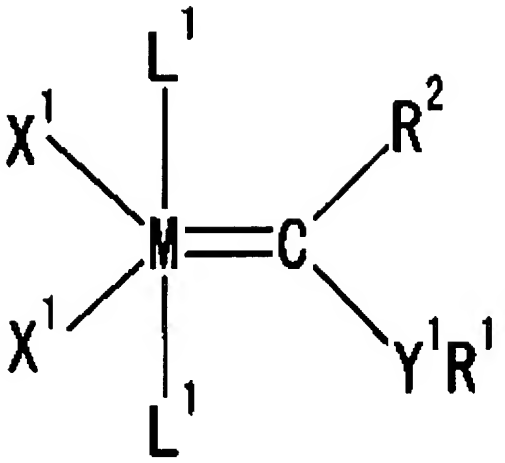
Claim 14 (original): The method according to Claim 12 for producing an organometallic compound, wherein R^1 or R^3 is phenyl group, or phenyl group substituted by at least one substituent

selected from the group consisting of an alkyl group of 1 to 5 carbon atoms, carboxyl group, alkoxy group of 1 to 5 carbon atoms, alkenyloxy group of 1 to 5 carbon atoms, aryloxy group of 6 to 10 carbon atoms, alkylsilyl group of 1 to 6 carbon atoms, arylsilyl group of 6 to 10 carbon atoms, acyl group of 1 to 7 carbon atoms, hydroxyl group, amino group of 10 carbon atoms or less, halogen atom, nitro group and acetyl group.

Claim 15 (original): The method according to Claim 12 for producing an organometallic compound, wherein Y^1 is selected from the group consisting of oxygen, sulfur and selenium atoms.

Claim 16 (original): The method according to Claim 12 for producing an organometallic compound, wherein the neutral ligand (E) is selected from the group consisting of a tertiary phosphine and imidazolium-2-ylidene.

Claim 17 (original): The method according to Claim 12 for producing an organometallic compound, wherein the organometallic compound is represented by the general formula (4):



(4)

(wherein, M is elementary ruthenium or osmium; R^1, R^2, Y^1 and X^1 are each the same as the respective one described before; and L^1s are each a neutral electron donor, which may be the same or different).

Claim 18 (original): The method according to Claim 17 for producing an organometallic compound, wherein R^2 is hydrogen atom.

Claim 19 (original): The method according to Claim 17 for producing an organometallic compound, wherein

R^1 or R^3 is phenyl group, or phenyl group substituted by at least one substituent selected from the group consisting of an alkyl group of 1 to 5 carbon atoms, carboxyl group, alkoxy group of 1 to 5 carbon atoms, alkenyloxy group of 1 to 5 carbon atoms, aryloxy group of 6 to 10 carbon atoms, alkylsilyl group of 1 to 6 carbon atoms, arylsilyl group of 6 to 10 carbon atoms, acyl group of 1 to 7 carbon atoms, hydroxyl group, amino group of 10 carbon atoms or less, halogen atom, nitro group and acetyl group.

Claim 20 (original): The method according to Claim 17 for producing an organometallic compound, wherein Y^1 is selected from the group consisting of oxygen, sulfur and selenium atoms.

Claim 21 (original): The method according to Claim 17 for producing an organometallic compound, wherein the organometallic compound is dichloro[bistricyclohexylphosphino]phenylthiomethinoruthenium.

Claim 22 (original): The method according to Claim 17 for producing an organometallic compound, wherein the organometallic compound is free of an impurity of vinyl hetero compound or vinyl compound.